

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Shunpei Yamazaki

Art Unit : Unknown

Serial No. : Unassigned

Examiner : Unknown

Filed : November 8, 2001

Title : LIGHT EMITTING DEVICE

Commissioner for Patents

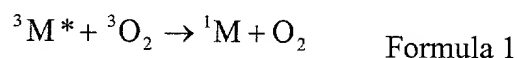
Washington, D.C. 20231

**PRELIMINARY AMENDMENT**

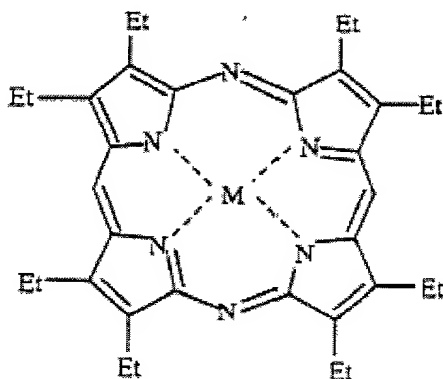
Prior to examination, please amend the application as follows:

In the specification:

**Replace the paragraph beginning at page 5, line 11 with the following rewritten paragraph:**



**Replace the paragraph beginning at page 23, line 18 with the following rewritten paragraph:**



Chemical Formula 3

In the claims:

**Amend claims 1, 4, 7, 10, 13, 16, 19, 20 and 23 as follows:**

1. A light emitting device comprising:  
a first insulating layer comprising silicon nitride or silicon oxynitride;

a second insulating layer comprising silicon oxynitride and located over said first insulating layer;

a thin film transistor formed between said first insulating layer and said second insulating layer, said thin film transistor having a semiconductor layer comprising silicon, a gate insulating film, and a gate electrode;

a third insulating layer comprising silicon nitride or silicon oxynitride and located over said second insulating layer;

a fourth insulating layer comprising carbon and located over said third insulating layer;

a light emitting element formed between said third insulating layer and said fourth insulating layer, said light emitting element comprising an anode, an organic compound layer, and a cathode comprising an alkali metal; and

partition layers comprising an insulating material on said third insulating layer, wherein said light emitting element is formed between the partition layers.

4. A light emitting device comprising:

a first insulating layer comprising silicon nitride or silicon oxynitride;

a second insulating layer comprising silicon oxynitride and located over said first insulating layer;

a thin film transistor formed between said first insulating layer and said second insulating layer, said thin film transistor having a semiconductor layer comprising silicon, a gate insulating film, and a gate electrode;

a third insulating layer comprising silicon nitride or silicon oxynitride and located over said second insulating layer;

a fourth insulating layer comprising carbon and located over said third insulating layer;

a light emitting element formed between said third insulating layer and said fourth insulating layer, said light emitting element comprising an anode, an organic compound layer, and a cathode comprising an alkali metal; and

partition layers comprising an insulating material on said third insulating layer, wherein:

said light emitting element is formed between the partition layers, and

said partition layers have a shape in which an upper portion protrudes in a direction parallel to a substrate.

7. A light emitting device comprising:

a first insulating layer comprising silicon nitride or silicon oxynitride;

a second insulating layer comprising silicon oxynitride and located over said first insulating layer;

a thin film transistor formed between said first insulating layer and said second insulating layer, said thin film transistor having a semiconductor layer comprising silicon, a gate insulating film, and a gate electrode;

a third insulating layer comprising silicon nitride or silicon oxynitride and located over said second insulating layer;

a fourth insulating layer comprising carbon and located over said third insulating layer;

a light emitting element formed between said third insulating layer and said fourth insulating layer, said light emitting element comprising an anode, an organic compound layer, and a cathode comprising an alkali metal; and

partition layers comprising an insulating material and located on said third insulating layer,

wherein:

said light emitting element is formed between the partition layers, and

said organic compound layer and said cathode do not contact said partition layers.

10. A light emitting device comprising:

a first insulating layer comprising silicon nitride or silicon oxynitride;

a second insulating layer comprising silicon oxynitride and located over said first insulating layer;

a thin film transistor formed between said first insulating layer and said second insulating layer, said thin film transistor having a semiconductor layer comprising silicon, a gate insulating film, and a gate electrode;

a third insulating layer comprising silicon nitride or silicon oxynitride and located over said second insulating layer; and

a fourth insulating layer comprising carbon and located over said third insulating layer;

a light emitting element formed between said third insulating layer and said fourth insulating layer, said light emitting element comprising an anode, an organic compound layer, and a cathode comprising an alkali metal; and

partition layers comprising an insulating material and located on said third insulating layer,

wherein:

said light emitting element is formed between the partition layers,

the partition layers have a shape in which an upper portion protrudes in a direction parallel to a substrate, and

said organic compound layer and said cathode do not contact said partition layers.

13. A light emitting device comprising:

a substrate;

a gate electrode located over said substrate;

a first insulating layer comprising silicon nitride or silicon oxynitride and located over said gate electrode;

a semiconductor film located over said first insulating film;

a second insulating layer comprising silicon oxynitride and located over said semiconductor film;

a third insulating layer comprising silicon nitride or silicon oxynitride and located over said second insulating film; and

a light emitting element located over said third insulating layer, said light emitting element having an anode, an organic compound layer, and a cathode comprising an alkali metal;

a fourth insulating layer comprising carbon and located over said light emitting element; and

partition layers comprising an insulating material and located over said third insulating layer,

wherein said light emitting element is formed between the partition layers.

16. A light emitting device comprising:

a substrate;

a first insulating layer comprising a material selected from the group consisting of silicon nitride and silicon oxynitride and located over said substrate;

thin film transistors formed on said first insulating layer;

a second insulating layer comprising silicon oxynitride and located over said thin film transistors;

a third insulating layer comprising a material selected from the group consisting of silicon nitride and silicon oxynitride and located over said second insulating layer;

light emitting elements arranged in a matrix over said substrate and operationally connected to said thin film transistors, each of the light emitting elements comprising an anode, a cathode comprising an alkali metal, and an organic compound layer between said anode and said cathode;

partition layers formed over said third insulating layer and extending in parallel; and

a fourth insulating layer comprising carbon and formed over said light emitting elements such that each of said light emitting elements is interposed between said third and fourth insulating layers,

wherein said light emitting elements arranged in a same row or a same column of said matrix are disposed between and along adjacent ones of said partition layers.

19. A light emitting device according to claim 16, wherein said partition layers are spaced apart from said cathode and said organic compound layer of said light emitting elements.

20. A light emitting device comprising:

a substrate;

a first insulating layer comprising a material selected from the group consisting of silicon nitride and silicon oxynitride and located over said substrate;  
at least one thin film transistor formed on said first insulating layer;  
a second insulating layer comprising silicon oxynitride and located over said thin film transistor;

a third insulating layer comprising a material selected from the group consisting of silicon nitride and silicon oxynitride and located over said second insulating layer;

at least one light emitting element operationally connected to said thin film transistor, said light emitting element comprising an anode, a cathode comprising an alkali metal and an organic compound layer between said anode and said cathode;

at least first and second partition layers located over said third insulating layer such that said light emitting element is disposed between said first and second partition layers; and

a fourth insulating layer comprising carbon formed over said light emitting element such that the light emitting element is interposed between said third and fourth insulating layers,

wherein a distance between opposed edges of said first and second partition layers at a top portion of said first and second partition layers is smaller than a distance between opposed edges of said first and second partition layers at a bottom portion of said first and second partition layers.

23. A light emitting device according to claim 20, wherein said partition layers are spaced apart from said cathode and said organic compound layer of said light emitting elements.

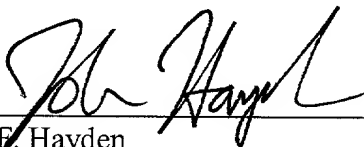
REMARKS

The amendments to the claims made herein are to correct minor grammatical errors and to place the application in better form for examination. No new matter is added.

Attached is a marked-up version of the changes being made by the current amendment.

Applicant asks that all claims be examined. Please apply any charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,



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Date: November 8, 2001

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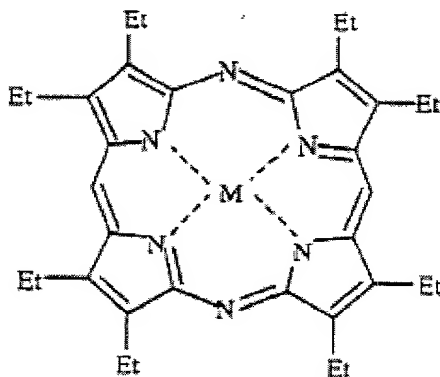
**Version with markings to show changes made**

In the specification:

**Paragraph beginning at page 5, line 11 has been amended as follows:**



**Paragraph beginning at page 23, line 18 has been amended as follows:**



Chemical **[Fomula]** Formula 3

In the claims:

**Claims 1, 4, 7, 10, 13, 16, 19, 20 and 23 have been amended as follows:**

1. **(Amended)** A light emitting device comprising:

a first insulating layer comprising silicon nitride or silicon oxynitride;

a second insulating layer comprising silicon oxynitride and located over said first insulating layer;

a thin film transistor formed between said first insulating layer and said second insulating layer, said thin film transistor having a semiconductor layer comprising silicon, a gate insulating film, and a gate electrode;

a third insulating layer comprising silicon nitride or silicon oxynitride and located over said second insulating layer;

a fourth insulating layer comprising carbon and located over said third insulating layer;



a light emitting element formed between said third insulating layer and said fourth insulating layer, said light emitting element comprising an anode, an organic compound layer, and a cathode comprising an alkali metal; and

partition layers comprising an insulating material on said third insulating layer, wherein said light emitting element is formed between the partition layers.

**4. (Amended)** A light emitting device comprising:

a first insulating layer comprising silicon nitride or silicon oxynitride;

a second insulating layer comprising silicon oxynitride and located over said first insulating layer;

a thin film transistor formed between said first insulating layer and said second insulating layer, said thin film transistor having a semiconductor layer comprising silicon, a gate insulating film, and a gate electrode;

a third insulating layer comprising silicon nitride or silicon oxynitride and located over said second insulating layer;

a fourth insulating layer comprising carbon and located over said third insulating layer;

a light emitting element formed between said third insulating layer and said fourth insulating layer, said light emitting element comprising an anode, an organic compound layer, and a cathode comprising an alkali metal; and

partition layers comprising an insulating material on said third insulating layer, wherein;

said light emitting element is formed between the partition layers, and

**[wherein]** said partition layers have a shape in which an upper portion protrudes in a direction parallel to a substrate.

**7. (Amended)** A light emitting device comprising:

a first insulating layer comprising silicon nitride or silicon oxynitride;

a second insulating layer comprising silicon oxynitride and located over said first insulating layer;

a thin film transistor formed between said first insulating layer and said second insulating layer, said thin film transistor having a semiconductor layer comprising silicon, a gate insulating film, and a gate electrode;

a third insulating layer comprising silicon nitride or silicon oxynitride and located over said second insulating layer;

a fourth insulating layer comprising carbon and located over said third insulating layer;

a light emitting element formed between said third insulating layer and said fourth insulating layer, said light emitting element comprising an anode, an organic compound layer, and a cathode comprising an alkali metal; and

partition layers comprising an insulating material and located on said third insulating layer,

wherein;

said light emitting element is formed between the partition layers, and

**[wherein]** said organic compound layer and said cathode **[are provided without contacting]** do not contact said partition layers.

10. **(Amended)** A light emitting device comprising:

a first insulating layer comprising silicon nitride or silicon oxynitride;

a second insulating layer comprising silicon oxynitride and located over said first insulating layer;

a thin film transistor formed between said first insulating layer and said second insulating layer, said thin film transistor having a semiconductor layer comprising silicon, a gate insulating film, and a gate electrode;

a third insulating layer comprising silicon nitride or silicon oxynitride and located over said second insulating layer; and

a fourth insulating layer comprising carbon and located over said third insulating layer;

a light emitting element formed between said third insulating layer and said fourth insulating layer, said light emitting element comprising an anode, an organic compound layer, and a cathode comprising an alkali metal; and

partition layers comprising an insulating material and located on said third insulating layer,

wherein:

said light emitting element is formed between the partition layers,

the partition layers **[having]** have a shape in which an upper portion protrudes in a direction parallel to a substrate, and

**[wherein]** said organic compound layer and said cathode **[are provided without contacting]** do not contact said partition layers.

13. **(Amended)** A light emitting device comprising:

a substrate;

a gate electrode located over said substrate;

a first insulating layer comprising silicon nitride or silicon oxynitride and located over said gate electrode;

a semiconductor film located over said first insulating film;

a second insulating layer comprising silicon oxynitride and located over said semiconductor film;

a third insulating layer comprising silicon nitride or silicon oxynitride and located over said second insulating film; and

a light emitting element located over said third insulating layer, said light emitting element having an anode, an organic compound layer, and a cathode comprising an alkali metal;

a fourth insulating layer comprising carbon and located over said light emitting element; and

partition layers comprising an insulating material and located over said third insulating layer,

wherein said light emitting element is formed between the partition layers.

16. **(Amended)** A light emitting device comprising:

a substrate;

a first insulating layer comprising a material selected from the group consisting of silicon nitride and silicon oxynitride and located over said substrate;

**[a plurality of]** thin film transistors formed on said first insulating layer;

a second insulating layer comprising silicon oxynitride and located over said **[plurality of]** thin film transistors;

a third insulating layer comprising a material selected from the group consisting of silicon nitride and silicon oxynitride and located over said second insulating layer;

**[a plurality of]** light emitting elements arranged in a matrix over said substrate **[wherein]** and operationally connected to said **[plurality of]** thin film transistors, **[are operationally connected to said plurality of light emitting elements,]** each of the light emitting elements comprising an anode, a cathode comprising an alkali metal, and an organic compound layer between said anode and said cathode;

**[a plurality of]** partition layers formed over said third insulating layer and extending in parallel; and

a fourth insulating layer comprising carbon and formed over said **[plurality of]** light emitting elements **[wherein]** such that each of said light emitting elements is interposed between said third and fourth insulating layers,

wherein said light emitting elements arranged in a same row or a same column of said matrix are disposed between and along adjacent ones of said **[plurality of]** partition layers.

19. **(Amended)** A light emitting device according to claim 16, wherein said **[plurality of]** partition layers are spaced apart from said cathode and said organic compound layer of said light emitting elements.

20. **(Amended)** A light emitting device comprising:

a substrate;

a first insulating layer comprising a material selected from the group consisting of silicon nitride and silicon oxynitride and located over said substrate;

at least one thin film transistor formed on said first insulating layer;

a second insulating layer comprising silicon oxynitride and located over said thin film transistor;

a third insulating layer comprising a material selected from the group consisting of silicon nitride and silicon oxynitride and located over said second insulating layer;

at least one light emitting element **[wherein]** operationally connected to said thin film transistor, **[is operationally connected to said light emitting element,]** said light emitting element comprising an anode, a cathode comprising an alkali metal and an organic compound layer between said anode and said cathode; **[and]**

at least first and second partition layers located over said third insulating **[layers wherein]** layer such that said light emitting element is disposed between said first and second partition layers<sub>[,]; and</sub>

a fourth insulating layer comprising carbon formed over said light emitting element **[wherein]** such that the light emitting element is interposed between said third and fourth insulating layers,

wherein a distance between opposed edges of said first and second partition layers at a top portion of said first and second partition layers is smaller than a distance between opposed edges of said first and second partition layers at a bottom portion of said first and second partition layers.

23. **(Amended)** A light emitting device according to claim 20, wherein said **[plurality of]** partition layers are spaced apart from said cathode and said organic compound layer of said light emitting elements.